

**REMARKS**

In the present Amendment, the specification has been amended to correct typographical errors and for clarification. Claim 1 has been amended to delete the comma at the last line. No new matter has been added, and entry of the Amendment is respectfully requested.

Claims 1-3 are pending.

Claims 1-3 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

This rejection should be withdrawn because Claims 1-3 are definite.

The test for definiteness under 35 U.S.C. § 112, second paragraph, is whether “those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986).

This test was recently applied by the Board of Appeals at the USPTO in *Ex parte Miyazaki*, Appeal 2007-3300, Application 09/386,000, decided on November 19, 2008. As set forth therein, Applicant is required to clearly and precisely set out the metes and bounds of the claimed invention.

In the present case, Claim 1 clearly recites that a concentration of 1,2-epoxy-2-phenylpropane contained in a reaction mixture after the oxidation step is 1% by weight or less.

Therefore, one skilled in the art would understand what is claimed. The metes and bounds of the claimed invention are clear to one skilled in the art. That is, the claims are not indefinite.

At page 10, lines 21-24 of the substitute specification, it is indicated that “[w]hen the concentration of 1,2-epoxy-2-phenylpropane contained in the oxidation reaction mixture is over

1 % by weight, a reaction yield in the oxidation step deteriorates because amounts of cumyl alcohol and acetophenone formed increase.”

The Examiner considers that the above disclosure advises one of ordinary skill in the art that the key to Applicants’ invention is that the amount of the by-product of the three step process should be limited in the feed to the oxidation step.

However, it is readily apparent to one skilled in the art that the concentration of 1,2-epoxy-2-phenylpropane defined in the claims is a concentration contained in the reaction mixture after the oxidation step, not the feed concentration. Moreover, characterizing this as a feed concentration has no basis in the specification.

To clarify this for the Examiner, the specification at page 10, lines 21-24 has been amended to recite that “[w]hen the concentration of 1,2-epoxy-2-phenylpropane contained in the ~~oxidation~~ reaction mixture after the oxidation step is over 1 % by weight, a reaction yield in the oxidation step deteriorates because amounts of cumyl alcohol and acetophenone formed increase.”

Further, Applicants disclose at page 10, line 21 to page 11, line 11 of the specification as amended:

When the concentration of 1,2-epoxy-2-phenylpropane contained in the reaction mixture after the oxidation step is over 1% by weight, a reaction yield in the oxidation step deteriorates because amounts of cumyl alcohol and acetophenone formed increase. Though cumyl alcohol can be returned to cumene via the hydrogenation step, it is not preferred economically as a process of propylene oxide production because hydrogen of equimolar to cumyl alcohol, is consumed. In addition, acetophenone is a compound in which

the carbon number was reduced, therefore, it converts into ethylbenzene via the conversion step, leading to a loss of cumene.

Though distillation removal, removal through reaction, adsorption removal and the like are listed as methods for controlling the 1,2-epoxy-2-phenylpropane concentration to the range within the present invention, *it is preferable as a method of controlling generation of 1,2-epoxy-2-phenylpropane to optimize the reaction conditions of oxidation such as temperature and time or to reduce alcohols and olefins other than cumene as much as possible.*

As is clear from the above disclosures, 1,2-epoxy-2-phenylpropane is a by-product of the oxidation reaction, which might decompose to form cumyl alcohol and acetophenone.

Still further, the Examples in the specification indicate, consistent with the above disclosures, that 1,2-epoxy-2-phenylpropane is a by-product of the oxidation reaction, not in the feed for the oxidation reaction.

Specifically, in Example 1, it is disclosed that “cumene recycled from a hydrogenation step was mixed with an aqueous solution of 1.5 wt.% of sodium carbonate . . . , and the mixture was reacted under a pressure of 630 kPa and a temperature of 90 to 105 °C for 5 hours supplying air. At this time, a concentration of 1,2-epoxy-2-phenylpropane was 0.2% by weight.”

In view of the above, the present claims are definite. Withdrawal of the § 112 rejection is respectfully requested.

Allowance is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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**23373**

CUSTOMER NUMBER

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